

REMARKS/ARGUMENTS**Claims**

Claims 18-22 have been canceled without prejudice. Claims 1-3, 5-8, 10-13, and 15-17 are pending.

Claim Rejection under 35 USC 103

The Examiner rejected claims 15-17 under 35 U.S.C. 103(a), as being unpatentable over Besser et al. (6,633,085) in view of Lopatin et al. (6,703,307).

Besser does not disclose or make obvious the doping of the silicon oxide layer with a divalent ion to form a barrier layer extending from within the silicon oxide layer to the surface of the silicon oxide layer and then forming an electrically conductive copper containing layer on the surface of the barrier layer, where the barrier layer prevents diffusion of copper into the substrate, as recited in claim 15. The Examiner stated that Besser teaches a silicon oxide layer 34 that is implanted with dopants 42 and that Besser teaches a conductive plug. In Besser the conductive plug 48 is not on the surface of the barrier layer formed by the dopant 42 in the silicon oxide layer 34, but instead the silicon oxide layer 34 is separated from the conductive plug 48 by a barrier layer 46, which col. 5, lines 49 to 58, of Besser describes as being made of a refractory barrier metal such as tantalum or tantalum nitride. Lopatin does not remedy this deficiency. For at least these reasons, claim 15 is not made obvious by Besser in view of Lopatin.

Dependent claims 16 and 17 are also patentably distinct from the cited references for at least the same reasons as those recited above for independent claim 15, upon which they ultimately depend. These dependent claims recite additional limitations that further distinguish these dependent claims from the cited references. For at least these reasons, claims 16 and 17 made obvious by the cited references.

The Examiner stated that claims 1-3, 5-8, and 10-13 are allowed.

The applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,

BEYER WEAVER & THOMAS, LLP



Michael Lee
Registration No. 31,846

P.O. Box 70250
Oakland, CA 94612-0250
Telephone: (650) 961-8300